REMARKS

Claims 1-19 are pending. Claim 1 is amended. Claims 15-18 are withdrawn from consideration.

Claim Amendments

Claim 1 has been amended to recite that the treatment duration is at least 72 hours. Support for this amendment is found, for example, in Example 2 at paragraph [0032], page 8 of the specification.

Claim Rejections – 35 U.S.C. §103

Claims 1-14 and 19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Waldron et al. (US 6,168,067) in view of Sainfort et al. (US 5,560,789). Applicant respectfully requests reconsideration and withdrawal of the rejection.

The Examiner essentially stated that Waldron et al. teach the claimed invention, except for a heat treatment with a duration twice as long as the normal homogenization or solution heat treatment duration. However, the Examiner asserted that it would have been obvious to modify the process of Waldron et al. to use a solution heat treatment time that is twice that of the conventional solution heat treatment time and at a temperature very close to the melting temperature, but avoiding incipient melting of the alloy, as taught by Sainfort et al. Applicant respectfully disagrees.

Independent claims 1 and 19 recite subjecting at least two elements to the prolonged heat treatment, *thereafter* friction stir welding the at least two elements, and *thereafter* conducting solution heat treatment. Thus, the recited prolonged heat treatment is conducted *before* friction stir welding and the solution heat treatment is conducted *after* the friction stir welding. Sainfort et al. do not provide any disclosure of friction stir welding or welding of any type. The disclosure of Sainfort et al. is limited to improving strength with a prolonged homogenization treatment, and does not teach or suggest a heat treatment before friction stir welding in order to improve the weld properties after friction stir welding and solution heat treatment , as recited in the claimed invention. Therefore,

the combined disclosures of Waldron et al. and Sainfort et al. do not teach or suggest the claimed invention, and there is no motivation to combine the references as suggested by the Examiner to arrive at the claimed invention.

Additionally, claim 1 now recites a treatment duration of at least 72 hours. Sainfort et al. do not teach that a treatment duration of more than 48 hours would provide any benefit at all. Table 1 below shows the property improvement that can be obtained from Table 1 of Sainfort et al.. It is clear from Table 1 below that the improvement of strength is very limited (about 1%). Moreover, there is no clear teaching in Table 1 of Sainfort et al. of an elongation improvement that could be obtained with a treatment duration of more than 48 hours. Specifically, for the example referenced as "42x27.5," there is an 8.3% drop in elongation, whereas there is a 25.9% increase in elongation for the example referenced as "Dia. 60." One of ordinary skill in the art would therefore have had no motivation from Sainfort et al. to make a homogenization heat treatment of more than 48 hours.

Table 1

	Variation	% Difference between 24h 470°C and 48h 470°C [A]	% Difference between 48h 470°C [A] and 48h 470°C + 48h 475 °C [B]
42x27.5	$R_p0.2$	+ 7.4%	+ 1.9%
	R_m	+ 9.8%	+ 1.5%
	A	+ 20.0%	- 8.3%
Dia. 60	$R_p0.2$		+ 1.5%
	R_m		+ 1.5%
	A		+ 25.9%

Moreover, example 1 (Dia. 60) from Sainfort et al. does not show clear evidence of improved properties between a specific energy of 1.64 J/g (48h 470°C [A]) and 0.05 J/g (48h 470°C + 48h 475 °C[B]). Sainfort et al. discloses submitting the majority of soluble phases to solution heat treatment (see Sainfort et al., column 2 lines 30 to 32). Sainfort et al. is not directed to obtaining coalescence of dispersoids. To the contrary, in a process of the present application, the duration of homogenizing and/or intermediate heating and/or treatment of a partly finished product is significantly increased in order to

not only obtain phase dissolution, but also to obtain coalescence of dispersoids (see Ehrstrom declaration, paragraph 3). One of ordinary skill in the art would not have been motivated by the Sainfort et al. disclosure to make a heat treatment for at least $2t_1$ wherein t_1 is minimum treatment duration to obtain a specific energy of less than 1 J/g, in order to obtain coalescence of dispersoids.

For at least the above reasons, the asserted combination of Waldron et al. and Sainfort et al. does not render claims 1 and 19 obvious. Claims 2-14 depend from claim 1, and are therefore also not rendered obvious by the asserted combination of Waldron et al. and Sainfort et al.

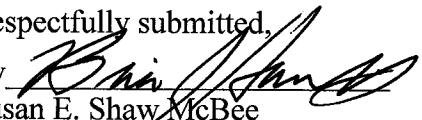
Conclusion

In view of the above amendment and foregoing remarks, Applicants believe the pending application is in condition for allowance.

If a fee is due, please charge our Deposit Account No. 11-0553, under Order No. 2901683.19, from which the undersigned is authorized to draw.

Dated: February 13, 2008

Respectfully submitted,

By 

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